

A new species of *Tetranychus* (Acari: Tetranychidae) from the Kinki District, Japan

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Abstract — *Tetranychus takafujii* Ehara & Ohashi sp. nov. is described from the black nightshade, *Solanum nigrum* L. (Solanaceae) in Osaka. This new mite was found to severely attack *S. nigrum*, *S. carolinense* L. (horse nettle), and *S. melongena* L. (eggplant) in Osaka and Kyoto.

Key words — Acari, eggplant, Japan, new species, *Solanum*, Tetranychidae, *Tetranychus takafujii*

In a recent revision of the spider mite family Tetranychidae of Japan (Ehara 1999), 78 species were reported to occur in this country. Later *Tetranychus neocaledonicus* André 1933 was recorded for the first time in Japan (Ehara & Yamaguchi 2001).

Very recently, one of us (K. O.) found an unfamiliar spider mite species severely attacking a few species of plants belonging to the genus *Solanum* in Osaka and Kyoto, and sent some specimens to S. E. to determine the species. On close examination this mite was found to be an undescribed species of the genus *Tetranychus* Dufour. The species is described as new in this paper.

The setal nomenclature is the same as that of Ehara (1999). The measurements are given in micrometers, and those of the holotype are in parentheses following the mean. The holotype and paratypes are preserved in the collection of the National Science Museum, Tokyo.

Tetranychus takafujii sp. nov.

[Japanese name: Mitsuyubi-nami-hadani]

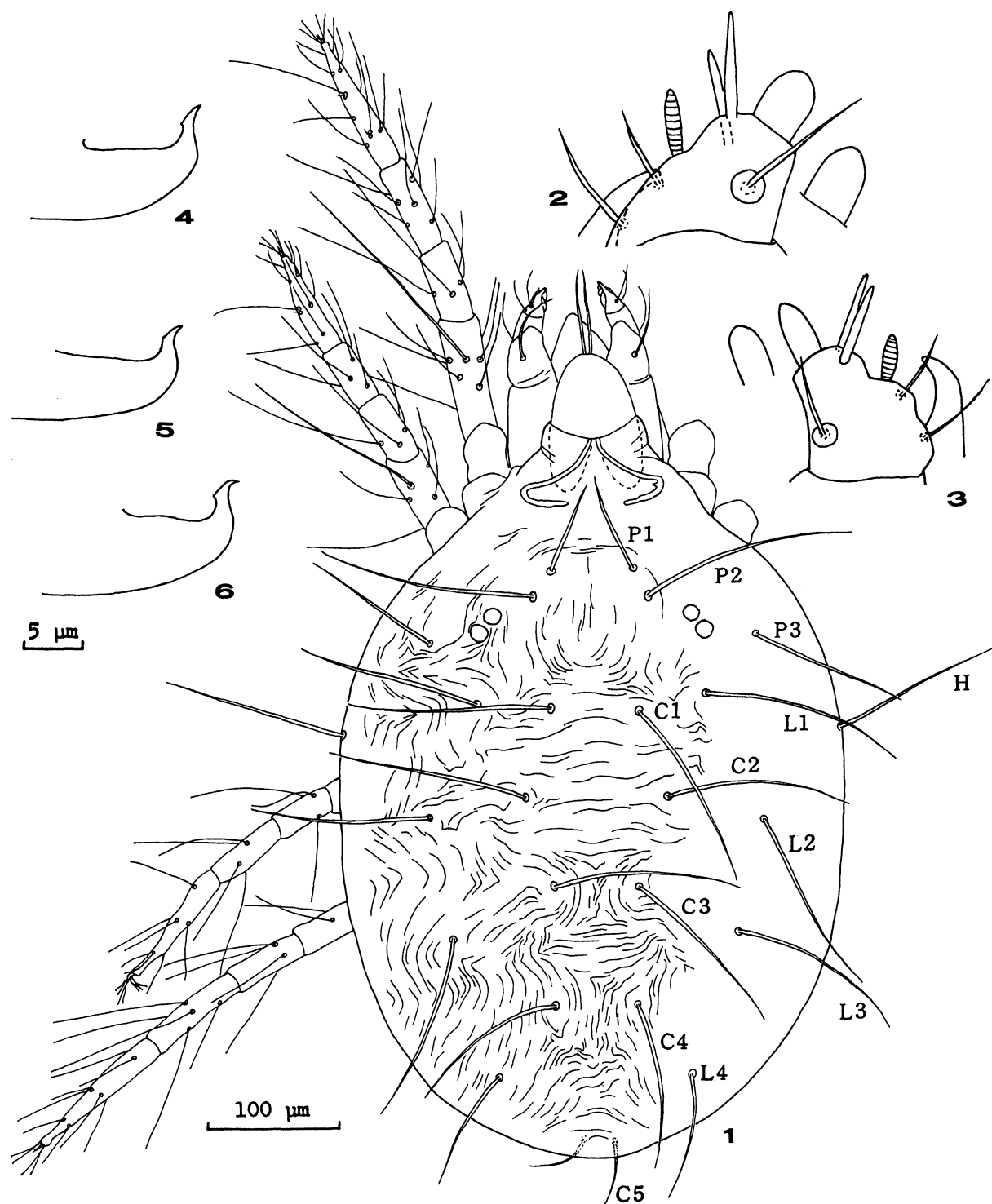
(Figs. 1–10, 11A, B)

Female. Body, including rostrum, 595 long, 353 wide (Fig. 1); pale orange (young) to dark orange (matured); legs pale orange (Fig. 11A, B). Dorsal idiosomal setae slender, much longer than distances between consecutive setae; lengths of setae (mean \pm SE, $n=10$): P1 76.3 ± 0.6 , P2 163.8 ± 2.3 , P3 116.2 ± 1.1 , H 139.4 ± 0.8 , C1 154.6 ± 1.9 , C2 148.0 ± 1.9 , C3 147.7 ± 2.2 , C4 132.1 ± 2.1 , C5 52.7 ± 0.7 , L1 150.6 ± 1.8 , L2 149.9 ± 1.5 , L3 145.8 ± 1.4 , L4 104.8 ± 1.7 . Opisthosomal striae longitudinal between setae C3 and between C4, forming a diamond-shaped figure between these setae; dorsal opisthosomal striae with lobes rounded distally, very variable in shape. Peritreme hooked distally.

Genital flap with transverse striae; area immediately anterior to flap with longitudinal striae. Palpus with spinneret about one and a half times as long as broad; dorsal sensillum slender, subcylindrical (Fig. 2). The number of setae and solenidia (in parentheses) on leg segments: femora 10-6-4-4, genua 5-5-4-4, tibiae 9(1)-7-6-7, tarsi 13(1)+ 2 dupl.-13(1)+ 1 dupl.-9(1)-10(1). Tarsus I with proximal set of duplex setae nearly in line with proximal tactile setae, and not in line with solitary proximal solenidion (Fig. 7); tarsus II with 3 tactile setae and 1 solenidion proximal to duplex setae (Fig. 8). Empodia I and II with 3 pairs of proximoventral hairs and minute mediodorsal spur (Figs. 7, 8); empodia III and IV with mediodorsal spur practically absent.

Male. Body, including rostrum, 471 long, 217 wide; milk-white to pale orange. Lengths of setae ($n=10$): P1 60.1 ± 0.8 (59.0), P2 115.7 ± 2.1 (114.0), P3 80.5 ± 1.5 (81.5), H 92.6 ± 1.5 (94.8), C1 98.8 ± 1.7 (100.0), C2 99.3 ± 2.0 (101.0), C3 96.0 ± 1.5 (94.0), C4 78.4 ± 1.4 (78.0), C5 35.2 ± 1.3 (32.2), L1 101.1 ± 1.6 (101.5), L2 104.2 ± 1.8 (102.0), L3 97.9 ± 1.8 (100.0), L4 64.7 ± 1.1 (65.0). Aedeagus upturned distally; terminal knob slender, about 2.6 long, with dorsal margin slightly convex; anterior tip of knob slightly angulate; the posterior projection elongate, tapering; axis of knob forming a definite angle with axis of shaft (Figs. 4–6). Spinneret about twice as long as broad, dorsal sensillum subcylindrical (Fig. 3). Setae and solenidia (in parentheses) on podomeres: femora 10-6-4-4, genua 5-5-4-4, tibiae 9(4)-7-6-7, tarsi 13(3)+ 2 dupl.-13(1)+ 1 dupl.-9(1)-9(1). Tarsus I with 3 tactile setae and 2 solenidia proximal to proximal set of duplex setae, and 1 tactile seta near proximal duplex setae (Fig. 9); tarsus II with 3 tactile setae and 1 solenidion proximal to duplex setae (Fig. 10). Empodium I with small mediodorsal spur and pair of proximoventral spurs (Fig. 9). Empodium II with small mediodorsal spur; each of proximoventral spurs divided into 3 small spurs distally, which show high variability in size among specimens but

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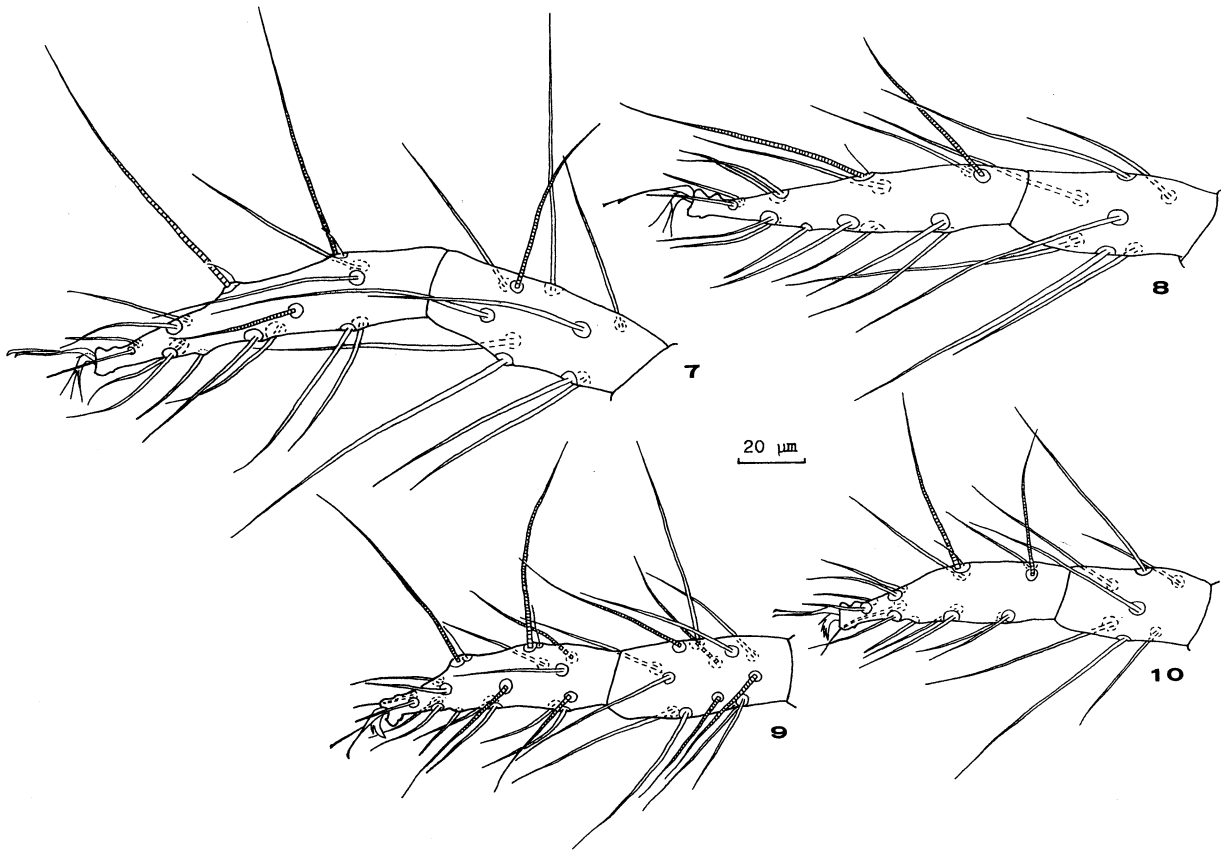


Figs. 1–6. *Tetranychus takafujii* sp. nov. — 1, dorsum (♀); 2, 3, distal segment of palpus, with another spinneret (2, ♀; 3, holotype ♂); 4–6, aedeagi (4, holotype). C1–C5, dorsocentral opisthosomal setae; H, humeral seta; L1–L4, dorsolateral opisthosomal setae; P1–P3, prodorsal setae. All the figures to scale except for Fig. 1.

are not hairy (Fig. 10). Empodia III and IV with small mediodorsal spur and 3 pairs of proximoventral hairs.

Type series. Holotype: ♂ (NSMT-Ac 11287), Yodogawa Riverside Park, Fukushima-ku, Osaka, 28-IX-2001 (K. Ohashi leg.), on *Solanum nigrum* L. (black nightshade). Paratypes: 15

slides (NSMT-Ac 11288–11302): Osaka (K. Ohashi leg.): 2♂5♀, with the same data as holotype; 1♂3♀, Kunijima, Higashi-yodogawa-ku, 11-VI-2001, on *S. nigrum*; 1♂1♀, Y. R. P., Fukushima-ku, 28-IX-2001, on *S. carolinense* L. (horse nettle); 1♂1♀, Y. R. P., Kita-ku, 28-IX-2001, on *S. melongena* L.



Figs. 7–10. *Tetranychus takafujii* sp. nov. — 7, tarsus and tibia I (♀); 8, tarsus and tibia II (♀); 9, tarsus and tibia I (♂); 10, tarsus and tibia II (♂).

(eggplant); 1♂6♀, Y. R. P., Fukushima-ku, 28-X-2001, on *S. nigrum*; 2♂5♀, Y. R. P., Fukushima-ku, 28-X-2001, on *S. carolinense*; 1♂7♀, Y. R. P., Kita-ku, 28-X-2001, on *S. melongena*.

Other specimens. Kyoto (K. Ohashi leg.): 3♂6♀, Moriyama-cho, Nakagyo-ku, 3-XII-2001, on *S. nigrum*; 3♂6♀, Demizu-cho, Kamigyo-ku, 3-XII-2001, on *S. nigrum*; 4♂6♀, Tanakashimoyanagi-cho, Sakyo-ku, 3-XII-2001, on *S. carolinense*.

Distribution and hosts. Japan (Honshu), on *Solanum*.

Remarks. *Tetranychus takafujii* sp. nov. closely resembles *T. evansi* Baker & Pritchard 1960 known from Mauritius, Africa, the United States, Brazil, etc. (Baker & Pritchard 1960; Moraes et al. 1987; Baker & Tuttle 1994). However, male empodium II of *T. takafujii* differs in having 3 pairs of small but distinct proximoventral spurs which are not hairy, as opposed to a pair of slightly digitate proximoventral spurs as in *T. evansi*.

The aedeagus of *T. takafujii* is also similar to that of *T. marianae* McGregor 1950 known from the Tropical Pacific Area, the Southeast Asia, and North and South America (McGregor 1950; Pritchard & Baker 1955; Moraes et al. 1987). However, the female of *T. takafujii* may be discriminated from *T. marianae* by the proximal duplex pair on tarsus I not in line with the solitary proximal solenidion, as opposed to being in line with the solitary solenidion.

Moreover, the male of *T. takafujii* is distinctive in having empodium II as mentioned above, as opposed to divided into proximoventral hairs.

T. takafujii also resembles *T. ludeni* Zacher 1913 in the setal arrangement of female tarsus I (Pritchard & Baker 1955; Ehara & Masaki 1989; Baker & Tuttle 1994). However, the female of *T. ludeni* has a carmine instead of pale to dark orange body, and the male differs in the shape of the aedeagus and empodium II. Incidentally, *T. ludeni* was often found to occur along with *T. takafujii* on *Solanum* in Osaka.

As stated above, a few plant species of *Solanum* in Osaka and Kyoto, including eggplant, were recognized to be heavily infested by *T. takafujii* (Fig. 11C, D). It is possible that this new mite species becomes a noteworthy pest of *Solanum* plants in Japan.

Etymology. This new species is named in honor of Dr. Akio Takafuji, Professor of Graduate School of Agriculture, Kyoto University.

Acknowledgment

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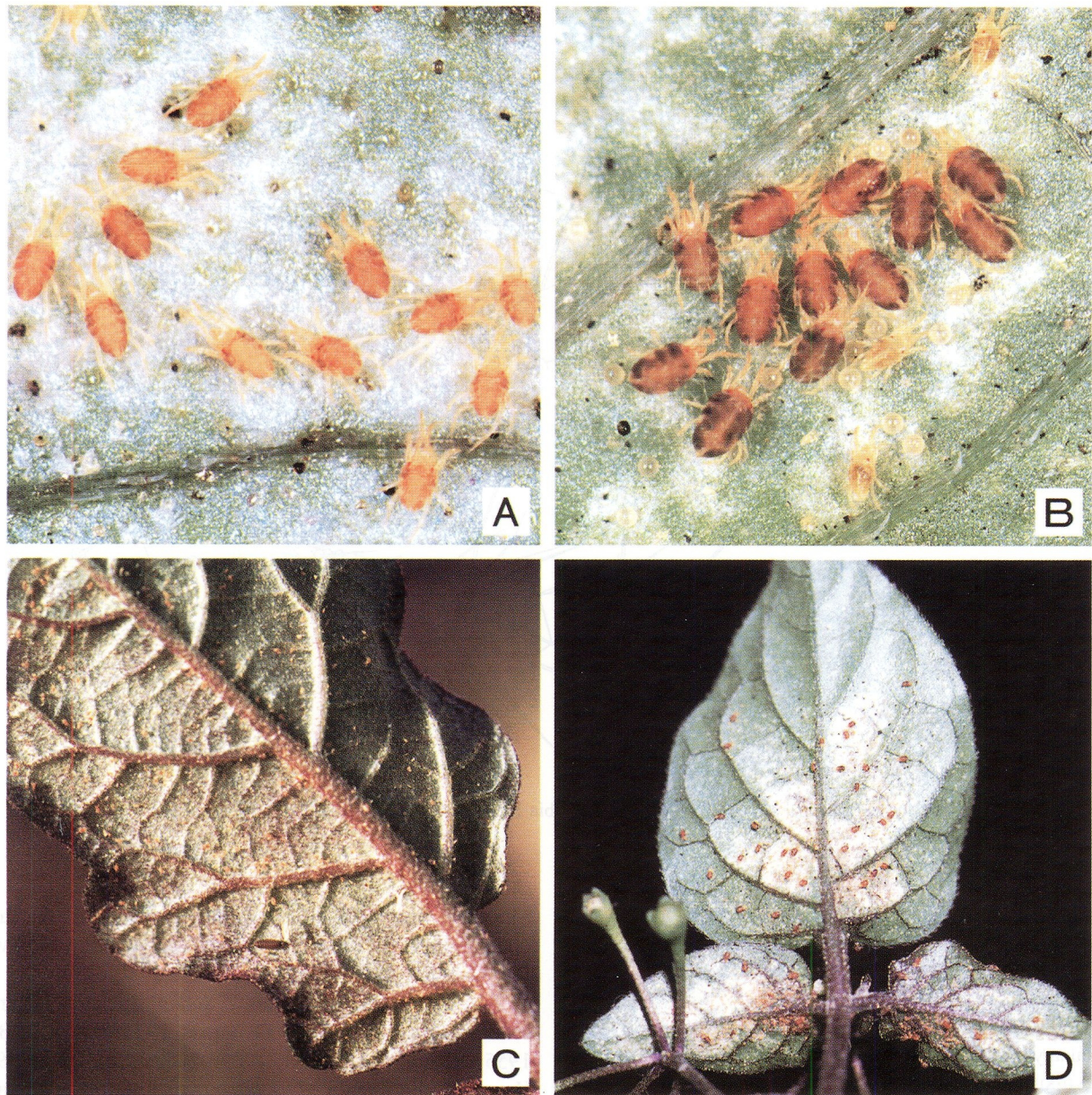


Fig. 11. *Tetranychus takafujii* sp. nov., photographs. — A, young adult females on *Solanum nigrum*; B, mature adult females on *S. nigrum*; C, injury to eggplant leaf; D, injury to leaves of *S. nigrum*.

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Acta Arachnologica Vol. 51, No. 1 掲載論文の和文要旨

アシナガグモの生活史 (pp. 1-4)

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野外調査と飼育によって、アシナガグモ (*Tetragnatha praedonia*) の生活史を調べた。野外では、新たに孵化したと思われる子グモが、6月から9月の間に繰り返し出現した。出のう直後から育てられた10頭のうち、5頭 (オス2頭とメス3頭) が成体となった。出のうから最終脱皮までの期間は、オスでは57-59日、メスでは47-51日であった。新たに孵化した子グモの度重なる出現と短い生活史は、アシナガグモが年2-3世代の回転率をもつことを示唆している。

アカクモヒメバチによるサツマノミダマシへの寄生の初記録【短報】 (pp. 5-6)

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アカクモヒメバチ *Eriostethus rufus* (Uchida, 1932) は従来 *Araneus* 属のクモに寄生するとされていた。しかし、我々はこのハチが別属である *Neoscona* 属のクモに寄生することを発見した。アカクモヒメバチとその宿主であるクモとの関係は再検討する必要がある。

日本産ミジングモ亜科 (クモ目: ヒメグモ科) の属および種の検討 (pp. 7-18)

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日本産のミジングモ亜科 *Hadrotarsinae* Thorell 1881 の属および種の検討をおこなった。この亜科の特徴は、雌の受精のうが2対で雌の触肢の爪が背腹方向に扁平、第1歩脚跗節腹面に特化した毛があることおよび糸疣前疣の中央に洗濯板状の突出部があることである。

すべての種に検討を加え、属の検索表を表し、日本から6属19種を記録した。このうち、ヤギヌマミジングモ属 (新称) *Yaginumena* を新属として記載し、ツツミジングモ属 (新称) *Trigonobothrys* Simon 1889 およびシロカネヒラタヒメグモ属 (新称) *Emertonella* Bryant 1949 を属として復活した。さらに、アイチミジングモ属 (新称) *Lasaeola* Simon 1881 に属する種を日本より記録した。これらの属に属する12種、ボカシミジングモ *Yaginumena castrata* (Bösenberg & Strand 1906)、コアカクロミジングモ *Y. mutilata* (Bösenberg & Strand 1906)、マダラミジングモ *Y. maculosa* (Yoshida & Ono 2000)、オキナワミジングモ *Lasaeola okinawana* (Yoshida & Ono 2000)、ヨシダミジングモ *L. yoshidai* (Ono 1991)、ヨナミジングモ *L. yona* (Yoshida & Ono 2000)、ヤマトミジングモ *Trigonobothrys japonicus* (Yoshida 1985)、アマミミジングモ *T. amamiensis*

(Yoshida 1985)、ホシミジングモ *T. martinae* (Roberts 1983)、キベリミジングモ *T. flavomarginatus* (Bösenberg & Strand 1906)、カニミジングモ *T. mustelinus* (Simon 1889) およびクロホシミジングモ *T. nigromaculatus* (Yoshida 1987) はミジングモ属 *Dipoena* Thorell 1869 より、さらに1種、シロカネヒラタヒメグモ属 *Emertonella taczanowskii* (Keyserling 1886) はヒラタヒメグモ属 *Euryopis* Menge 1868 より新たに属を移動した。また、タニカワミジングモ (新称) *Dipoena nipponica* を新種として記載した。さらに、中国で記載された *Dipoena immaculata* Zhu 1998 をキベリミジングモ *T. flavomarginatus* の、また北アメリカ産の種をタイプ種とする属 *Pselothorax* Chamberlin 1948 をアイチミジングモ属 *Lasaeola* の新参異名とした。フタホシヒラタヒメグモ *Euryopis iharai* Yoshida 1992 は所属が不明確のため本稿では除外した。

近畿地方でナス属を食害するナミハダニ属 (ハダニ科) の1新種 (pp. 19-22)

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大阪・京都両市の市街地でナス属 (*Solanum*) の3種の植物 (イヌホオズキ、ワルナスビおよびナス) に多発していたハダニを新種と認め、*Tetranychus takafujii* (ミツユビナミハダニ、新称) と命名・記載した (ホロタイプは大阪市福島区淀川河川公園のイヌホオズキから採集した♂)。本種は、国外の *T. evansi* Baker & Pritchard に最もよく似ているが、♂の第II脚の爪間体の形態で異なる。挿入器は国外産の *T. marianae* McGregor のそれにも似るが、♀♂の脚の形態で相違する。脚の毛の配列は日本のアシノワハダニにも類似するが、挿入器の形態で識別できる。このハダニは、日本国内でナス属の主な害虫の一つになる可能性を持っていると思われる。

中国のアシダカグモ科 2. 長春コレクションに含まれる種

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アシダカグモ科の2新種: *Sinopoda angulata* と *S. fasciculata* を記載した。 *Pseudopoda* sp. cf. *exiguoides* と *Pseudopoda* 属の種名未決定種をそれぞれを湖南省と四川省から記録した。アシダカグモ *Heteropoda venatoria* を広東省と雲南省から記録した。ツユグモ *Micrommata virescens* を吉林省から初めて記録した。 *Olios tiantongensis* を同種とみられる2雄をそれぞれ江蘇省と湖南省から記録した。 *O. menghaiensis* を同種とみられる1♀を雲南省から記録した。 *Eusparassus sanguinifrons* Simon 1906 の雌を初めて記載し、*Olios* へ転属した。全種の生殖器を図示した。(和訳: 編集委員会)